

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 1, 2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1 – 9, 11 – 13, 15 – 19 have been considered but are moot in view of the new ground(s) of rejection.

Derryberry et al. (US 6,498,785) teaches measuring at the information delivery apparatus, a received level of a connection request signal sent from each radio terminal at a time of initial connection between each radio terminal and the information delivery apparatus (Col. 1 lines 53 – 64, the access probe, which is a connection request signal, is transmitted at various power levels, open loop power control further comprises the base station sending a response to said access probe when the power level of said access probe is at an adequate level thus requiring measurement of said power level, mobiles that are close to said base station will transmit lower power access probes than mobiles that are further away from said base station). Kumar (Col. 7 lines 66 – 67,

Column 8 lines 1 – 4) and Derryberry, as demonstrated above, both teach determining the closest transmitter or device thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the above method of Derryberry as an alternative means for determining the closest device.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 9, 11 – 13, and 15 – 19 are rejected under 35 U.S.C. 102(b) as being unpatentable over Marturano et al. (5,636,230) in view of Kumar (US 6,269,080) and in further view of Derryberry et al. (US 6,498,785)

Regarding Claim 1, Marturano teaches a retransmission control method in a multicast service providing system in which an information delivery apparatus transmits multicast information to radio terminals within a service area of the information delivery apparatus via a radio section (Figure 1, Column 2 lines 43 – 52), some of the radio terminals being configured to send a request for retransmission of the multicast information in case of an error and others of the radio terminals being configured to not send the request for retransmission (Column 3 lines 20 – 38), said method comprising: determining whether respective of the radio terminals within the service area is

designated as a retransmission-permitted terminal permitted for retransmission of the multicast information (Column 4 lines 16 – 62), and determining by the information delivery apparatus that at least one of the radio terminals receiving the multicast information is predetermined as being the retransmission-permitted terminal permitted for retransmission of the multicast information (Column 3 lines 20 – 26, the transmitting data unit, which is the information delivery apparatus, receives NACKs from the receiving data units, the said NACKs are transmitted by those receiving data units that are permitted to receive retransmissions thus said NACKs will be an indication to said transmitting data unit that at least one of said receiving data units is predetermined as being a retransmission permitted data unit thus further enabling said transmitting data unit to determine said retransmission permission); notifying a retransmission designation status to the retransmission-permitted terminal, and delivering, when a request for retransmission of the multicast information sent by one of the radio terminals is received, the multicast information to said one of the radio terminals (Column 4 lines 16 – 49, the counter limit sent during the preamble is the notification); and changing one of the radio terminals designated as being the retransmission-permitted terminal, to a retransmission-inhibited terminal which is not permitted for retransmission of the multicast information, based on a status of retransmission requests received from the radio terminals (Column 3 lines 20 – 38).

Marturano does not teach measuring, at the information delivery apparatus, a received level of a connection request signal sent from each of the radio terminals at a time of initial connection between each radio terminal and the information delivery

apparatus, determining by the information delivery apparatus, in accordance with the measured received level of the connection request signal, that at least one of the radio terminals is predetermined as being the retransmission-permitted terminal permitted for retransmission of the multicast information and changing another of the radio terminals within the service area to a retransmission-permitted terminal based on a status of retransmission requests received from the radio terminals such that correlation between reception errors occurring at the originally designated retransmission-permitted terminal and reception errors occurring at the newly changed retransmission-permitted terminal is reduced by said changing of said one of the originally designated radio terminals to the retransmission-inhibited terminal and said changing of said another of the radio terminals to the retransmission-permitted terminal.

Kumar teaches determining by the information delivery apparatus that at least one of the terminals is predetermined as being the retransmission-permitted terminal permitted for retransmission of the multicast information (Column 6 lines 52 – 67, Column 7 lines 1 – 10, lines 66 – 67, Column 8 lines 1 – 4) and changing another of the terminals within the service area to a retransmission-permitted terminal based on a status of retransmission requests received from the terminals (See Columns: 6 lines 52 – 67, 7 lines 1 – 24, another one of the terminals is selected to be the active receiver which can request retransmission) such that correlation between reception errors occurring at the originally designated retransmission-permitted terminal and reception errors occurring at the newly changed retransmission-permitted terminal is reduced by said changing of said one of the originally designated terminals to the retransmission-

inhibited terminal and said changing of said another of the terminals to the retransmission-permitted terminal (See Columns: 6 lines 52 – 67, 7 lines 1 – 24, selecting different terminals as the active receivers enables an efficient use of resources thus eliminating acknowledgement implosion which leads to a reduction in the correlation between reception errors occurring at an original active receiver and reception errors occurring at a newly selected active receiver).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the active receiver selection method taught in Kumar in the multicast system taught in Marturano as an alternative means for eliminating the acknowledgement implosion problem associated with multicast transport protocols by making only one receiver responsible for generating acknowledgements and also requesting retransmissions as taught by Kumar.

Derryberry teaches measuring at the information delivery apparatus, a received level of a connection request signal sent from each radio terminal at a time of initial connection between each radio terminal and the information delivery apparatus (Col. 1 lines 53 – 64, the access probe, which is a connection request signal, is transmitted at various power levels, open loop power control further comprises the base station sending a response to said access probe when the power level of said access probe is at an adequate level thus requiring measurement of said power level, mobiles that are close to said base station will transmit lower power access probes than mobiles that are further away from said base station).

Kumar (Col. 7 lines 66 – 67, Column 8 lines 1 – 4) and Derryberry, as demonstrated above, both teach determining the closest transmitter or device thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the above method of Derryberry as an alternative means for determining the closest device.

Regarding Claim 2, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches the step comprising a step of determining, at the information delivery apparatus, said at least one radio terminal (Column 4 lines 16 – 62); and the retransmission control method further comprises a step of notifying said at least one radio terminal that a request for retransmission is permitted (Column 4 lines 16 – 49, the notification is the counter limit that is sent during the preamble).

Regarding Claim 3, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches a step that comprises a step of determining, at each radio terminal, whether its own terminal is placed in retransmission control (Column 4 lines 16 – 49, since the receiving data units receive the counter limit during the preamble said receiving data units know if they will be placed in retransmission control).

Regarding Claim 4, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches the step of determining a plurality of radio terminals to be placed in retransmission control (Column 4 lines 16 – 62).

Regarding Claim 5, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches radio terminals in a service area (Figure 1, Column 2 lines 43 – 52). Kumar further teaches a step of grouping terminals on the basis of unique information assigned to the terminals; and the step determines at least one terminal on the basis of grouping terminals (Figure 4, Figure 5, Figure 9, Figure 10, Column 6 lines 52 – 67, Column 7 lines 1 – 17, Column 7 lines 44 – 67, Column 8 lines 1 – 16, Column 10 lines 27 – 67, Column 11 lines 1 – 15).

Regarding Claim 6, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches a step that determines at least one radio terminal on the basis of a quality of communications between the information delivery apparatus and each of the radio terminals (Column 4 lines 63 – 67, Column 5 lines 1 – 12).

Regarding Claim 7, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches a step that determines at least one radio terminal on the basis of distances between the information delivery apparatus and the radio terminals (Column 4 lines 63 – 67, Column 5 lines 1 – 12, the RSSI and the SNR can improve or degrade as the distance changes thus this is an inherent characteristic).

Regarding Claim 8, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches a

step that determines at least one radio terminal on the basis of directions of the radio terminals from the information delivery apparatus (Column 4 lines 50 – 62).

Regarding Claim 9, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches a step that determines at least one radio terminal on the basis of moving speeds of the radio terminals (Column 4 lines 50 – 62).

Regarding Claim 11, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 1. Marturano further teaches a step of changing said at least one radio terminal to another radio terminal when said at least one radio terminal terminates reception of the multicast information (Figure 1, Column 2 lines 43 – 52, Column 3 lines 20 – 38, there will be a plurality of receiving data units that have NACK capability thus when one receiving data unit terminates reception there will be other receiving data units with NACK capability that will still be receiving data).

Regarding Claim 12, Marturano teaches an information delivery apparatus for use in a multicast service providing system in which the information delivery apparatus transmits multicast information to radio terminals within a service area of the information delivery apparatus via a radio section (Figure 1, Column 2 lines 43 – 52, the transmitting data unit is the information delivery apparatus), some of the radio terminals being configured to send a request for retransmission of the multicast information in case of an error and others of the radio terminals being configured to not send the request for retransmission (Column 3 lines 20 – 38), said information delivery apparatus

comprising: a second unit configured to determine whether respective of the radio terminals within the service area is designated as a retransmission-permitted terminal permitted for retransmission of the multicast information (Column 4 lines 16 – 62, since the transmitting data unit conducts this function said transmitting data unit comprises an inherent first unit), at least one of the radio terminals receiving the multicast information is configured to be the retransmission-permitted terminal permitted for retransmission of the multicast information (Column 3 lines 20 – 26); a third unit configured to notify a retransmission designation status to the retransmission-permitted terminal, and delivering, when a request for retransmission of the multicast information sent by one of the radio terminals is received, the multicast information to said one of the radio terminals (Column 4 lines 16 – 49, the counter limit sent during the preamble is the notification, since the transmitting data unit conducts this function said transmitting data unit comprises an inherent second unit); and a fourth unit configured to change one of the radio terminals designated as being the retransmission-permitted terminal, to a retransmission-inhibited terminal which is not permitted for retransmission of the multicast information, based on a status of retransmission requests received from the radio terminals (Column 3 lines 20 – 38, since the transmitting data unit conducts this function said transmitting data unit comprises an inherent third unit).

Marturano does not teach a first unit configured to measure a received level of a connection request signal sent from each of the radio terminals at a time of initial connection between each radio terminal and the information delivery apparatus, said second unit also configured to determine, in accordance with the measured received

level of the connection request signal, the received level being measured by the information delivery apparatus that at least one of the radio terminals is predetermined to be the retransmission-permitted terminal permitted for retransmission of the multicast information and changing another of the radio terminals within the service area to a retransmission-permitted terminal based on a status of retransmission requests received from the radio terminals such that correlation between reception errors occurring at the originally designated retransmission-permitted terminal and reception errors occurring at the newly changed retransmission-permitted terminal is reduced by said changing of said one of the originally designated radio terminals to the retransmission-inhibited terminal and said changing of said another of the radio terminals to the retransmission-permitted terminal.

Kumar teaches a unit being configured to determine by the information delivery apparatus that at least one of the terminals is predetermined to be the retransmission-permitted terminal permitted for retransmission of the multicast information (Column 6 lines 52 – 67, Column 7 lines 1 – 10, lines 66 – 67, Column 8 lines 1 – 4, See Also Response To Arguments above) and changing another of the terminals within the service area to a retransmission-permitted terminal based on a status of retransmission requests received from the terminals (See Columns: 6 lines 52 – 67, 7 lines 1 – 24, another one of the terminals is selected to be the active receiver which can request retransmission) such that correlation between reception errors occurring at the originally designated retransmission-permitted terminal and reception errors occurring at the newly changed retransmission-permitted terminal is reduced by said changing of said

one of the originally designated terminals to the retransmission-inhibited terminal and said changing of said another of the terminals to the retransmission-permitted terminal (See Columns: 6 lines 52 – 67, 7 lines 1 – 24, selecting different terminals as the active receivers enables an efficient use of resources thus eliminating acknowledgement implosion which leads to a reduction in the correlation between reception errors occurring at an original active receiver and reception errors occurring at a newly selected active receiver).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the active receiver selection method taught in Kumar in the multicast system taught in Marturano as an alternative means for eliminating the acknowledgement implosion problem associated with multicast transport protocols by making only one receiver responsible for generating acknowledgements and also requesting retransmissions as taught by Kumar.

Derryberry teaches measuring at the information delivery apparatus, a received level of a connection request signal sent from each radio terminal at a time of initial connection between each radio terminal and the information delivery apparatus (Col. 1 lines 53 – 64, the access probe, which is a connection request signal, is transmitted at various power levels, open loop power control further comprises the base station sending a response to said access probe when the power level of said access probe is at an adequate level thus requiring measurement of said power level, mobiles that are close to said base station will transmit lower power access probes than mobiles that are further away from said base station).

Kumar (Col. 7 lines 66 – 67, Column 8 lines 1 – 4) and Derryberry, as demonstrated above, both teach determining the closest transmitter or device thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the above method of Derryberry as an alternative means for determining the closest device.

Regarding Claim 13, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 12. Marturano further teaches wherein the first unit determines a plurality of radio terminals to be placed in retransmission control (Column 4 lines 16 – 62).

Regarding Claim 15, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 13. Marturano further teaches a fourth unit managing status of retransmission requests sent by radio terminals placed in the retransmission control, the third unit changing said at least one radio terminal on the basis of the status of retransmission requests managed by the fourth unit (Column 3 lines 20 – 38, the repeated NACKs are a status of the retransmission requests thus there is an inherent fourth unit that manages said NACKs).

Regarding Claim 16, Marturano teaches a radio terminal configured to receive multicast information transmitted from an information delivery apparatus via a radio section (Figure 1, Column 2 lines 43 – 52), said radio terminal comprising: a second unit configured to determine whether the radio terminal is notified from the information delivery apparatus as being a retransmission-permitted terminal which is permitted for retransmission of the multicast information (Column 4 lines 16 – 40, the count limit sent

during the preamble to the receiving data unit is the notification thus there is an inherent first unit), and that the radio terminal is identified by the information delivery apparatus as being the retransmission-permitted terminal permitted for retransmission of the multicast information (Column 3 lines 20 – 26, the transmitting data unit, which is the information delivery apparatus, receives NACKs from the receiving data units, the said NACKs are transmitted by those receiving data units that are permitted to receive retransmissions thus said NACKs will be an indication to said transmitting data unit that at least one of said receiving data units is predetermined as being a retransmission permitted data unit thus further enabling said transmitting data unit to determine said retransmission permission); and a third unit configured to send a request for retransmission of the multicast information to the information delivery apparatus in case of an error when it is determined that the radio terminal is notified as being the retransmission-permitted terminal (Column 4 lines 16 – 49, since the receiving data unit conducts this function said receiving data unit comprises an inherent second unit).

Marturano does not teach said first unit to transmit a connection request signal to the information delivery apparatus at a time of initial connection between the radio terminal and the information delivery apparatus, a level of the connection request signal being measured at the information delivery apparatus, said second unit also being configured to determine, in accordance with the measured received level of the connection request signal, the received level being measured by the information delivery apparatus that the radio terminal is identified by the information delivery apparatus as being the retransmission-permitted terminal permitted for retransmission

of the multicast information and changing another of the radio terminals within the service area to a retransmission-permitted terminal and a second unit configured to send a request for retransmission of the multicast information to the information delivery apparatus in case of an error when it is determined that the radio terminal is notified as being the retransmission-permitted terminal such that correlation between reception errors occurring at the originally designated retransmission-permitted terminal and reception errors occurring at the newly changed retransmission-permitted terminal is reduced by said changing of said one of the originally designated radio terminals to the retransmission-inhibited terminal and said changing of said another of the radio terminals to the retransmission-permitted terminal.

Kumar teaches a unit also being configured to determine by the information delivery apparatus that at least one of the terminals is identified by the information delivery apparatus as being the retransmission-permitted terminal permitted for retransmission of the multicast information (Column 6 lines 52 – 67, Column 7 lines 1 – 10, lines 66 – 67, Column 8 lines 1 – 4, See Also Response To Arguments above); changing another of the terminals within the service area to a retransmission-permitted terminal (See Columns: 6 lines 52 – 67, 7 lines 1 – 24, another one of the terminals is selected to be the active receiver which can request retransmission) and a second unit configured to send a request for retransmission of the multicast information to the information delivery apparatus in case of an error when it is determined that the terminal is notified as being the retransmission-permitted terminal such that correlation between reception errors occurring at the originally designated retransmission-permitted terminal

and reception errors occurring at the newly changed retransmission-permitted terminal is reduced by said changing of said one of the originally designated terminals to the retransmission-inhibited terminal and said changing of said another of the terminals to the retransmission-permitted terminal (See Columns: 6 lines 52 – 67, 7 lines 1 – 24, selecting different terminals as the active receivers enables an efficient use of resources thus eliminating acknowledgement implosion which leads to a reduction in the correlation between reception errors occurring at an original active receiver and reception errors occurring at a newly selected active receiver).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the active receiver selection method taught in Kumar in the multicast system taught in Marturano as an alternative means for eliminating the acknowledgement implosion problem associated with multicast transport protocols by making only one receiver responsible for generating acknowledgements and also requesting retransmissions as taught by Kumar.

Derryberry teaches measuring at the information delivery apparatus, a received level of a connection request signal sent from each radio terminal at a time of initial connection between each radio terminal and the information delivery apparatus (Col. 1 lines 53 – 64, the access probe, which is a connection request signal, is transmitted at various power levels, open loop power control further comprises the base station sending a response to said access probe when the power level of said access probe is at an adequate level thus requiring measurement of said power level, mobiles that are

close to said base station will transmit lower power access probes than mobiles that are further away from said base station).

Kumar (Col. 7 lines 66 – 67, Column 8 lines 1 – 4) and Derryberry, as demonstrated above, both teach determining the closest transmitter or device thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the above method of Derryberry as an alternative means for determining the closest device.

Regarding Claim 17, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 16. Marturano further teaches wherein the first unit determines whether its own terminal is placed in retransmission control on the basis of given information sent by the information delivery apparatus (Column 4 lines 16 – 40, the count limit sent during the preamble lets the receiving data unit know whether it will be placed in retransmission control).

Regarding Claim 18, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 16. Marturano further teaches wherein the first unit determines whether its own terminal is placed in retransmission control on the basis of a quality of communications with the information delivery apparatus (Column 4 lines 63 – 67, Column 5 lines 1 – 12).

Regarding Claim 19, Marturano in view of Kumar and in further view of Derryberry teaches all of the claimed limitations recited in Claim 16. Marturano further teaches a fourth unit configured to correct the multicast information by part of the multicast information sent by the information delivery apparatus retransmitted in

response to a request for retransmission by the third unit when the second unit determines that its own terminal is placed in retransmission control (Column 4 lines 16 – 49). Kumar further teaches correcting the multicast information by part of the multicast information sent by the information delivery apparatus transmitted in response to a request for retransmission by another terminal when the second unit determines that its own terminal is placed out of retransmission control (Figure 4, Column 6 lines 52 – 67, Column 7 lines 1 – 10, the non active receivers in the group will receive the newly retransmitted packets thus allowing said non active receivers to correct the corrupted packets).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAYMOND S. DEAN whose telephone number is (571)272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raymond S Dean/
Primary Examiner, Art Unit 2618

Raymond S. Dean
June 9, 2008